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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

COMBS, JANELL A

ART UNIT PAPER NUMBER

1742

DATE MAILED: 10/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/089,702

Applicant(s)

FRIDLYANDER ET AL

Examiner

Janelle Combs-Morillo

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12 and 14 is/are rejected.
- 7) ☒ Claim(s) 11 and 13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-10, 12, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vernam (US 4,711,762 A) in view of Brown (US 4,832,758 A).

Concerning independent claims 1 and 4, Vernam teaches an aluminum alloy composition comprising (in weight%) typically 1.0-2.6% Cu, 1.0-3.1% Mg, 4.0-8.2% Zn, max. 0.3% Mn, max. 0.25%Cr, max. 0.25% Fe, max. 0.5% Si, max. 0.18% Zr (column 2 line 69-column 3 line 9, column 7 lines 45-50), \leq 0.3% Ti (column 5 lines 9-10), 0.005-0.5% Sr (column 7 line 47) which can be optionally replaced by Ca (which is taught to perform the same function of modifying intermetallic phases at column 5 lines 29-31), balance aluminum, which overlaps the presently claimed ranges of Zn, Mg, Cu, Mn, Ti, Zr, Cr, Si, Fe, and Ca. Vernam teaches that Ti aids in grain refining when in the above mentioned range (column 5 lines 9-10), and that Zr is important for inhibiting recrystallization, "which contributes significantly to resistance to stress corrosion cracking and which adds to fracture toughness" (column 5 lines 48-50). Vernam teaches that Fe and Si are typical impurities found in aluminum alloys, and should be held to the above mentioned maximums (column 4 lines 41-69, column 5 lines 1-8). Vernam does not teach the presence of Be in said Al-Zn-Mg-Cu alloy composition.

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However, Brown teaches that 0.001-0.005% Be can be added to substantially similar Al-Zn-Mg-Cu alloys in order to minimize oxidation (column 2 lines 17-20). It would have been obvious to one of ordinary skill in the art to add Be to the Al-Zn-Mg-Cu alloy taught by Vernam because Brown teaches that 0.001-0.005% Be minimizes oxidation (column 2 lines 17-20). Overlapping ranges have been held to be a prima facie case of obviousness, see MPEP § 2144.05, *In re Best* 195 USPQ 430, *In re Malagari*, 182 USPQ 549, *In re Titanium Metals Corporation of America v. Banner*, 227 USPQ 773 (Fed. Cir 1985), *In re Woodruff*, 16 USPQ 2d 1934, and *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976).

Concerning dependent claims 2 and 3, the ranges of Zr and Ti, as well as Si and Be, taught by Vernam meet the presently claimed relationships.

Concerning dependent claims 5-10, Vernam teaches an Al-Zn-Mg-Cu alloy that overlaps the instant ranges, as well as the inclusion of Ca instead of Sr, and does not teach any additional elements that would be excluded by the instant claim language of “consisting essentially of” or “consisting of”.

Concerning claims 12 and 14, as stated above, Vernam teaches the addition of Ca.

3. Claims 1-10, 12, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vernam (US 4,711,762 A) in view of Brown (US 4,832,758 A) and Shahani et al (US 6,027,582).

As stated above, Vernam teaches an Al-Zn-Mg-Cu alloy that overlaps the presently claimed ranges of Zn, Mg, Cu, Mn, Ti, Zr, Cr, Si, Fe, and Ca, and Brown teaches motivation to add Be to said alloy (see above discussion).

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Shahani et al is drawn to a substantially similar Al-Zn-Mg-Cu alloy and emphasizes the importance of minimizing Mn and Cr to <0.02 each, while maintaining $0.05 < \text{Zr} < 0.15$ (wherein Mn, Cr, and Zr are known recrystallization suppressants) because Mn and Cr “increase quench sensitivity, are avoided as much as possible” (column 5 lines 18-19). Shahani also teaches that low Fe and Si contents (such as 0.07-0.14% Fe and $<0.11\%$ Si) are also beneficial to reduce quench sensitivity. It would have been obvious to select <0.02 Mn and <0.02 Cr as well as the narrow ranges of Fe and Si from the broadly overlapping ranges of Mn, Cr, Fe, and Si taught by Vernam, because Shahani teaches that said elements increase quench sensitivity, and because Shahani teaches it is beneficial to use Zr as the principal recrystallization suppressant (column 5 lines 18-19).

Allowable Subject Matter

4. Claims 11 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art of record does not teach or suggest an Al-Zn-Mg-Cu alloy with the instant alloying ranges complete with K or Na, substantially as presently claimed.

Response to Amendment/Arguments

5. In the response filed on July 24, 2003, applicant amended claims 1-4 and added new claims 5-14. Applicant's argument that the present invention is allowable over the prior art of record because Vernam falls short of teaching the inclusion of Ca instead of Sr (arguments page

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6) has not been found persuasive. As stated above, Vernam teaches Sr can be optionally replaced by Ca (which is taught to perform the same function of modifying intermetallic phases at column 5 lines 29-31).

Applicant's argument that the present invention is allowable over the prior art of record because applicant has shown unexpected results in the instant specification (arguments pages 5-6 and 9-10) has not been found persuasive. "Applicant's reliance on examples in the specification disclosures as showing unexpectedly superior results is misplaced, since examples are manifestly not designed to compare, and do not compare, claimed subject matter with closest prior art" Ex parte Beck, 9 USPQ2d 2000 (BPAI, 1987). Applicant has not clearly shown that the instant Al-Zn-Mg-Cu alloy with added Be and K, Na, or Ca (substantially as presently claimed), exhibits unexpected results with regard to the prior art of record.

Applicant's argument that the present invention is allowable over the prior art of record because Vernam teaches when the intended use is aircraft applications, the alloy should consist of various elements, thereby excluding Be, has not been found persuasive. The examiner points out that Vernam is drawn to various application of said Al-Zn-Mg-Cu alloy, including those "containing" 1.2-2.6% Cu, 2.0-2.9% Mg, 5.1-6.9% Zn, 0.08-0.15% Zr, 0.005-0.35% Sr (which, as set forth above, can be replaced by Ca), max. 0.40% Si, max. 0.50% Fe, max 0.3% Mn, max. 0.20% Ti (column 7 lines 27-35). The examiner points out that "containing" is open claim language, see "Transitional Phrases", MPEP 2111.03).

Applicant's argument that the present invention is allowable over the prior art of record because "one of skill in the art would still have to pick and choose from among a vast number of components and ranges of components to arrive at the claimed invention" (arguments page 9)

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has not been found persuasive. The ranges of Zn, Mg, Cu, Si, Fe, Zr, Ti, Mn taught by Vernam substantially overlap the instant alloying ranges. Vernam teaches the equivalence of Sr, Sb, and Ca, and therefore it is within the level of one of skill in the art to select any of these 3 elements.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janelle Combs- Morillo whose telephone number is (703) 308-4757. The examiner can normally be reached Monday through Friday from 7:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King, can be reached on (703) 308-1146. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

A handwritten signature in black ink, appearing to read "Gry Wyszomierski".

GEORGE WYSZOMIERSKI
PRIMARY EXAMINER

jcm

A handwritten signature in black ink, appearing to read "jcm".

October 5, 2003